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Research Article

Healthy and Ready to Learn: Effects of a School-Based Public Health Insurance Outreach Program for Kindergarten-Aged Children

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ABSTRACT

BACKGROUND: Rates of child insurance coverage have increased due to expansions in public programs, but many eligible children remain uninsured. Uninsured children are less likely to receive preventative care, which leads to poorer health and achievement in the long term. This study is an evaluation of a school-based health insurance outreach initiative, ''Healthy and Ready to Learn,'' aiming to identify and enroll uninsured kindergarteners in areas of high economic need in 16 counties in North Carolina.

METHODS: Regression discontinuity design and difference-in-differences analyses were used to estimate the effect of the initiative on Medicaid and CHIP enrollment (primary outcome) and preventive care use (well-child visits; secondary outcome). Focus groups and key-informant interviews were conducted to assess best practices and identify barriers to outreach for child enrollment.

RESULTS: The initiative increased enrollment rates by 12.2% points and increased well-child exam rates by 8.6% points in the RD models, but not differences-in-differences, and did not significantly increase well-child visits.

CONCLUSIONS: Findings demonstrate the potential benefits of using schools as a point of intervention in enrolling young children in public health insurance and as a source of trusted information for low-income parents.

Keywords: health insurance; Medicaid; CHIP; outreach; preventive care; regression discontinuity; mixed-methods research.

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Health insurance coverage and access to preventative care are essential for ensuring that young, low-income children enter school healthy and ready to learn. Still, nearly 5 million children in the United States—who disproportionately come from low-income and working-poor families—remain uninsured while healthcare costs continue to rise and families struggle to find affordable care.[1-4] One of the most important justifications for public intervention in health insurance is that children who are uninsured do not receive routine preventive care. This is not only detrimental to children's health and well-being, but also imposes significant costs for families, schools, and society.[5-9] Because child health is closely linked to children's educational attainment and academic achievement, disparities in child health insurance coverage can exacerbate other socioeconomic disparities visible at school entry.[10-12] For many reasons, identifying

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children who are uninsured at school entry is central to many of the fundamental purposes of public school.[13]

Prior to the Affordable Care Act (enacted in 2014), Medicaid and the state Children's Health Insurance Program (CHIP) were the largest government interventions in child insurance coverage. Together, these 2 programs successfully increased rates of child insurance. However, the uninsured rate among children ages zero to 18 remains stagnant at around 7% as policymakers struggle to successfully enroll the millions of eligible yet uninsured children.[1] Therefore, the question that remains—particularly for low-income children who are almost universally eligible for either Medicaid or CHIP across the nation—is how can we identify and enroll children in public health insurance?

One policy response to the under enrollment of eligible children was the enactment of outreach and enrollment grants to states. Funded through the CHIP Reauthorization Act (CHIPRA) from the Centers for Medicare and Medicaid Services, grantees developed local initiatives to identify and enroll eligible uninsured children. School-linked initiatives are central in this regard because children enter schools with myriad social, health, and developmental issues.[14] Consequently, North Carolina received a CHIPRA outreach grant to implement the Healthy and Ready to Learn (HRL) initiative during 2009-2011. This school-based intervention worked with school nurses and staff by providing regional trainings on how to use a required health assessment form, submitted at school entry, to identify uninsured children who could be eligible but not enrolled in North Carolina's public health insurance programs.

This study examines the effectiveness of HRL in enrolling children in public insurance programs (primary outcome) and subsequently in increasing their use of well-child visits (secondary outcome) using mixed methodology. In so doing, I assess the more distal link between outreach, enrollment, and healthcare use and the extent to which access to public health insurance and information from trusted sources like school nurses, can affect the health behaviors of families. The quantitative analyses use strong quasi-experimental research designs—differences in differences and regression discontinuity—to address the potential for selection bias in program enrollment and preventive care use. Key-informant interviews and focus groups with school nurses and other staff allow me to assess program implementation and best practices to inform other health insurance outreach initiatives.

Benefits of Insurance Coverage for Children

Children's health is closely related to their current school performance because it influences their rates of attendance, concentration, and participation, and also affects their future educational and labor market outcomes.[6,7,10] Concerning then, is that uninsured children have limited contact with healthcare services, more serious health problems, and are more likely to forgo or not receive essential healthcare or use more expensive medical services than children in public or private insurance programs.[15-22] Indeed, one fourth (23%) of uninsured children have delayed or postponed care because of cost relative to 3% of insured children.[4,23,24]

Preventive care (ie, well-child visits) is associated with improved child health and reductions in avoidable hospital visits and dental costs later in life.[25,26] The American Academy of Pediatrics recommends that children ages 3-21 receive annual well-child visits,[27] but national data show that many children do not receive preventative care.[28] During these visits, physicians assess biomedical health, development, family functioning, and identify potential problems.[29] This is critical for the timely detection of any developmental issues that may require early intervention,[30,31] and for physicians to provide anticipatory guidance—practical information about children's health such as injury prevention, nutrition, and immunizations.[27,29] Furthermore, lack of preventive care can also threaten school and community health because children who do not receive an adequate number of well-child visits are less likely to be current on their immunizations and are more likely to have avoidable hospitalizations.[8,25,32]

A substantial body of research shows that health insurance coverage increases access to healthcare services for children. The results of studies from several states including Pennsylvania,[33] New York,[34] and Florida[35] demonstrate that children who were enrolled in a state insurance program had significant improvement in healthcare access, utilization, and quality of care.[9,34,36-40] Analyses using more nationally representative data indicate that children with continuous public coverage had significantly better access and utilization of healthcare when compared with eligible but uninsured children, and had equivalent or better access and utilization compared to children with private coverage.[36-38,41] Thus, increasing rates of child insurance would improve children's well-being if it resulted in higher rates of preventative care use. In this study I examine whether the HRL intervention improved both rates of child insurance and well-child checkups.

Identifying the Uninsured Through Schools: Outreach Through Healthy and Ready to Learn

Not long after the initial launch of CHIP, it became clear that different outreach strategies were required to reach the various subpopulations of eligible children,[42] many of whom had not enrolled because of

knowledge gaps.[43] Studies suggest that eligible families could benefit from targeted engagement strategies linking them with consistent and appropriate sources of pediatric healthcare information.[44,45] For these reasons CHIPRA included outreach and enrollment grants and bonus payments to states for adopting better enrollment and retention strategies, or for increasing enrollment beyond expected targets.[46]

In October 2009, North Carolina (NC) received a $678,210 CHIPRA Cycle I Outreach and Enrollment grant for the Healthy and Ready to Learn initiative, led by the North Carolina Pediatric Society Foundation. At the start of the intervention, 29% of NC children ages 0-5 were living in poverty (compared with 25% nationally), and 3 out of every 5 uninsured NC children were eligible for, but were not enrolled in 1 of the 2 public health insurance programs for young children (''Health Choice for Children,'' for children ages 6-18 whose families' incomes fall between 100% and 200% of the FPL, and through the Medicaid program ''Health Check'' to children ages 5 and under with incomes below 200% of the FPL).[24] This disparity stemmed from both insufficient outreach efforts and a need to simplify the enrollment and renewal processes.[47] As such, HRL was designed to be a targeted, school-based CHIP and Medicaid outreach initiative for identifying and enrolling eligible and uninsured children entering kindergarten in NC's highest-need counties. In line with the joint policy initiative by the National Association of the State Boards of Education and the Centers for Disease Control, HRL focuses on schools as a source of health information and a context to develop fit and healthy children who are ''ready to learn.''[48]

HRL Implementation and Evaluation

Although NC is a large and diverse state, it is also an economically disadvantaged state. In 2010, NC had the 12th highest poverty rate, 11th highest child poverty rate, and 12th lowest median household income in the United States.[49] To select counties for treatment, the University of North Carolina Sheps Center for Health Services Research developed a need index to determine the highest-need counties who would receive the intervention (index range, 6-23). This index incorporated county-level data on 2 economics-related measures (percent of children ages birth to 18 in poverty and the unemployment rate for April/May 2009) as well as the number of children who could potentially be reached by the intervention (number of children aged 6 to 8). Counties with an index score above 16 received HRL. In the first year (2009-2010), 16 counties were selected as intervention sites that included 278 elementary schools in 22 districts. Each school district in the HRL counties received $3000 to use for program purposes at their own discretion. In second year, the intervention was extended to an additional 32 counties who were also selected based on the ranking of their index score.

The main component of the initiative was a series of regional trainings in the HRL school districts for local school-based personnel, primarily school nurses and administrative staff on the Kindergarten Health Assessment form (KHA). Under the NC Health Assessment Law (G. S. 130A-440), every child entering kindergarten in public schools must receive a health assessment by a medical provider no more than 12 months prior to school entry. This is a required document for all children entering kindergarten that contains important health assessment data regarding illnesses, developmental and behavioral concerns, vision/hearing screening results, BMI, whether or not the child receives regular healthcare, and their medical home. Nurses must systematically review KHAs to identify the health needs of children entering their school. The HRL training highlighted the section of the KHA form where parents indicate whether the child has Medicaid, private insurance or HMO, or no insurance. Nurses and staff could then identify uninsured children and refer their families to local partners for potential Medicaid/CHIP enrollment. Note that the NC Medicaid program covers the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services free of charge. Children already enrolled in Medicaid prior to school entry could have their KHA form filled out by their healthcare provider during the EPSDT. The periodicity of EPSDT in NC occurs at ages 4 and 5, within the window prior to school entry required by the KHA law.

HRL staff conducted a similar web-based training with non-school-based physicians, nurses, and healthcare providers in HRL counties to encourage them to talk with families about insurance coverage during the well-child visit for the purposes of filling out the KHA form. HRL also involved continuous community-based outreach throughout the study period. This included attending community events, providing outreach materials in various languages, assisting schools in their outreach programs and troubleshooting, and contacting local organizations and community leaders to help inform families about CHIP and Medicaid.

METHODS

Data

Medicaid and CHIP administrative data. I calculated county-level enrollment and preventive care usage from the Medicaid and CHIP claim data. These are comprehensive administrative data collected by the Division of Medical Assistance (DMA) and include all claims made by children living in NC who were kindergarten-aged in the 2007-2008 through 2010-2011 school years. The data contain 3 cohorts of

Table 1. **County-Level Variables, Descriptive Statistics, and Data Sources for 2010**

Variables	Mean/SD	Data source
Controls		
Population growth rate	12.3 (11.5)	Office of State Management and Budget
Number of children ages 0-5	6350.5 (10, 397.6)	U.S. Census
Unemployment rate	11.4 (2.3)	Bureau of Labor Statistics
School nurse to student ratio	1029.2 (445.2)	NC School Nurse Council
Number of physicians per 10,000	7.2 (4.6)	NC Division of Health Service Regulation
Number of inpatient facilities	257.8 (400.4)	NC Division of Health Service Regulation
Outcome variable components		
Numerator		
Total number of 5-year-old children enrolled in Medicaid and CHIP	647.3 (858.8)	NC Division of Medical Assistance
Total number of 5-year-old children who received a well-child exam	522.6 (687.4)	NC Division of Medical Assistance
Denominator		
Population age 5 years	1264.4 (2076.6)	U.S. Census (2010)[†]
Survival rates by age (life tables)	99.9	NC State Center for Health Statistics
Percent of children ages 0-18 at or below 200% of the FPL	50.5 (9.6)	U.S. Census (2010), American Community Survey (2009, 2011)

[†]The 2009 and 2011 age 5 population calculations were estimated from the 2010 census by adjusting for child survival with Sprague multipliers.

kindergarteners who were enrolled in Medicaid or CHIP (1 year prior to intervention and 2 intervention years). The presence of a well-child exam claim is the measure of preventive care use. These data were then aggregated to the county-level by year. Each observation in the analysis dataset represents a county's enrollment rate, well-child claim rate, HRL status, and values of the control variables in a given year, and thus includes 300 observations (100 counties * 3 years). County-level covariates, including the county school nurse to student ratio, come from numerous data sources and are listed in Table 1.

The DMA data provided the total number of children enrolled and who received a well-child exam in each county, but additional calculations were necessary to develop enrollment and well-child exam *rates*. Principally, this involved estimating an appropriate *denominator*—the total number of children who are income- and age-eligible for Medicaid and CHIP by county. The variables involved in this calculation, mean values, and data sources are listed in Table 1.

Focus groups and key-informant interviews. The study team conducted 4 focus groups and 5 key-informant interviews across the HRL regions. These data were collected to assess different aspects of the implementation of HRL, to identify barriers to reaching families and to identify any other hidden treatments that may threaten the validity of the effect estimates. Focus group participants and key informants were recruited from elementary schools in the HRL counties during second year. Participants were not offered any other compensation for their time aside from the lunches provided during the focus group sessions.

Data Analysis

Selection bias is the primary challenge to detecting causal effects when the treatment outcome is program participation or enrollment. This is possible if unobserved county-level characteristics influence the county's willingness to implement a health insurance outreach program like HRL. I use 2 analytic approaches to address this problem. Further details on all analyses are available in a supplementary report upon request.

Regression discontinuity design (RD). This method exploits the fact that HRL treatment counties were selected using an economic need index, because the primary requirement for an RD is the use of a quantitative assignment variable (QAV) and a designated cutoff score to determine treatment status.[50,51] A graphical analysis of the QAV on county-level enrollment rates is displayed in Figure 1, and on county-level well-child exam rates in Figure 2. Models also include the county-level characteristics listed in Table 1 to increase power, eliminate any other sample biases, and improve precision.[51,52]

Difference-in-differences (DID). This analysis uses within-county change over time to identify the effect of HRL. Specifically, county enrollment and well-child exam claims at the end of the HRL treatment period in year 2 (2011) is compared to the county's enrollment and claims in the year prior to treatment (2009), as a baseline measure.

Additional models. I also estimated an RD model that includes the prior year outcome value as an independent variable, known as a lagged dependent variable (LDV), often used in educational research. This relates a current outcome to the prior year's outcome, which may help to increase the power of the RD model.

Focus group and interview design. The focus group and interview participants were school nurses and school administrators. I developed a schedule of questions to assess best practices in school-based and community outreach efforts, document the specific

Figure 1. **Graphical Analysis of the Quantitative Assignment Variable (QAV) on County-Level Enrollment Rates**

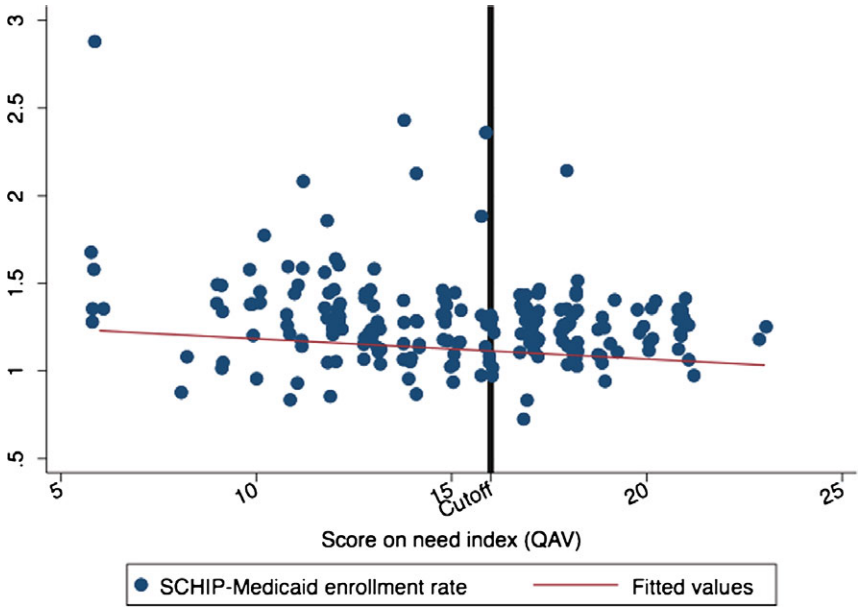
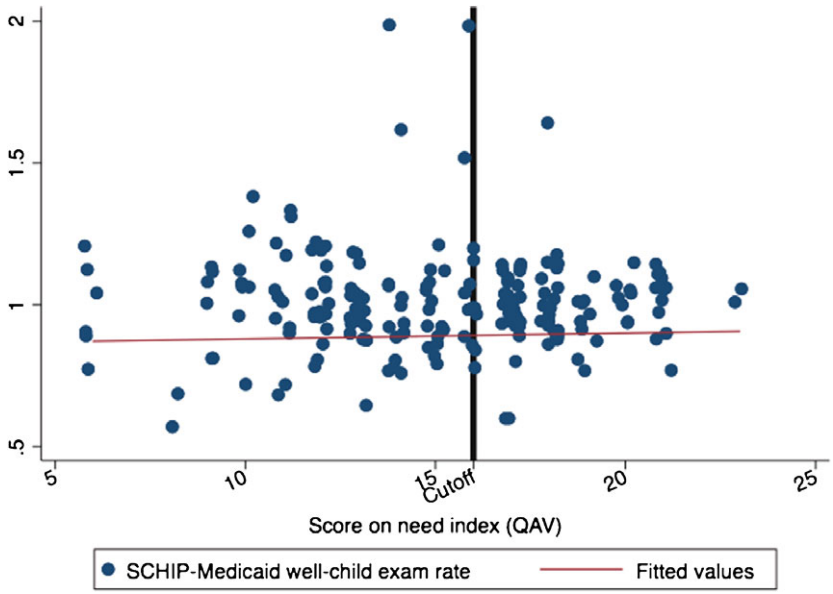


Figure 2. **Graphical Analysis of the Quantitative Assignment Variable (QAV) on County-Level Well-Child Exam Rates**



activities involved in the implementation of HRL, and identify any other hidden treatments. The focus groups were conversational but followed a specific set of questions to allow for the free flow of information and description of the participant's experience using an open response format.[53] I analyzed these data by extracting the substantive categories from the participants responses and then placing the categories into broader themes composing the larger central phenomena under study, such as successful outreach strategies.[53,54]

RESULTS

The results for the enrollment analyses are displayed in Table 2, and for well-child exam rates in Table 3. The RD and LDV-RD results are shown using a ''bandwidth'' of 3, meaning counties +/− 3 index points from the cutoff, and for the full sample

Table 2. **Model Results for the Effect of HRL on Medicaid and CHIP Enrollment Rates for Kindergarten Children[†,‡]**

	(1) Standard RD: bandwidth of 3	(2) Standard RD: full sample	(3) Differences in differences (2009-2011)	(4) LDV-RD: bandwidth of 3	(5) LDV-RD: full sample
HRL county in current year (HRL = 1)	0.046	0.092		0.12*	0.16*
	(0.84)	(1.70)		(3.89)	(3.87)
HRL*post			0.047		
			(1.29)		
Distance from cutoff	0.19	−0.055		0.20	−0.026
	(0.80)	(−0.95)		(1.64)	(−1.35)
Distance from cutoff squared	−0.0065	0.0011		−0.0068	0.000071
	(−0.85)	(0.62)		(−1.79)	(0.12)
County school nurse-student ratio (thousands)	−0.039	−0.066	−0.058	0.0085	−0.024
	(−0.86)	(−1.28)	(−1.26)	(0.31)	(−0.89)
County growth rate	−0.0027	0.0018	0.00081	−0.0029*	−0.00067
	(−1.06)	(0.40)	(0.22)	(−2.23)	(−0.27)
Number of primary care physicians in county—per 10 K	−0.0048	0.0013	−0.0025	0.0053	0.0060
	(−0.97)	(0.21)	(−0.41)	(1.47)	(1.78)
County unemployment rate	−0.011	0.008	−0.0056	−0.010	−0.0017
	(−0.57)	(0.47)	(−0.38)	(−1.30)	(−0.22)
Total number of children ages 0-5 in county (thousands)	−0.0068	−0.0055	−0.0064	0.00051	0.00080
	(−1.55)	(−1.27)	(−1.45)	(0.28)	(0.42)
Number of hospital beds in county	−0.000047	−0.000045	−0.000033	−0.00016	−0.00011
	(−0.34)	(−0.32)	(−0.25)	(−1.86)	(−1.37)
Number of hospitals in county	0.078*	0.067	0.060*	0.049*	0.037
	(2.21)	(1.93)	(2.08)	(2.52)	(1.85)
2011	0.099	0.11*	0.55*		
	(1.69)	(2.29)	(9.03)		
2010			0.45*		
			(6.12)		
County received HRL ever			−0.051		
			(−1.02)		
Lagged enrollment rate				1.18*	1.14*
				(10.62)	(9.39)
Constant	1.40*	1.08*	0.91*	0.36*	0.28*
	(4.30)	(3.93)	(5.76)	(2.34)	(2.05)
Observations	124	200	300	124	200

*$p < .05$.
[†] *t* statistics in parentheses.
[‡] Additional data and analytic details available from in a supplementary report from the author upon request.

of counties. Results using alternate bandwidths and different specifications are similar (available from the author).

Regression Discontinuity Models

Enrollment rates. Table 2, columns 1 and 2 display the RD estimates of the effect of HRL on enrollment. Restricting the sample to those within 3 units of the cutoff reduces both the magnitude and power of the coefficient on HRL, moving from 0.092 to 0.046. The effect is very small and positive, but not statistically significant.

Well-child exam rates. Table 3, columns 1 and 2 displays the RD estimates of the effect of HRL on well-child exam rates. Restricting the sample to those counties within 3 units of the cutoff does not change the magnitude or the power of the coefficient on HRL appreciably. The treatment effect is small and positive, but is not statistically significant.

Difference-in-Differences

The enrollment rate results from the DID estimation are displayed in column 3 of Table 2, and well-child results are displayed in column 3 of Table 3. In these models, the HRL treatment effect is captured by the variable HRL*post, an interaction term between the indicator for treatment and the indicator for 2011.

Enrollment rates. The effect of HRL on enrollment rates for kindergarten-aged children was small and positive, but it was not statistically significant. The positive and significant coefficients for 2010 and 2011 indicate that there were year-specific factors such as policy or economic changes that increased enrollment during the treatment time for all counties in NC.

Well-child exam rates. The effect of HRL on well-child exam rates was small and positive, but did not reach statistical significance. The positive and significant coefficients for 2010 and 2011 indicate that

Table 3. **Model Results for the Effect of HRL on Medicaid and CHIP Well-Child Exam Rates for Kindergarten Children[†,‡]**

	(1) Standard RD: bandwidth of 3	(2) Standard RD: full sample	(3) Differences in differences (2009-2011)	(4) LDV-RD: bandwidth of 3	(5) LDV-RD: full sample
HRL county in current year (HRL = 1)	0.043	0.044		0.086*	0.079*
	(0.94)	(1.07)		(3.14)	(3.01)
HRL*post			0.012		
			(0.52)		
Distance from cutoff	0.23	0.023		0.14	0.0015
	(1.12)	(0.79)		(1.23)	(0.11)
Distance from cutoff squared	−0.0076	−0.00088		−0.0049	−0.00050
	(−1.17)	(−0.98)		(−1.38)	(−1.10)
County school nurse-student ratio (thousands)	−0.021	−0.024	−0.023	0.0056	0.00061
	(−0.54)	(−0.58)	(−0.63)	(0.22)	(0.03)
County growth rate	−0.0021	−0.0020	−0.0021	−0.0021*	−0.0025*
	(−1.03)	(−1.40)	(−1.44)	(−2.06)	(−2.90)
Number of primary care physicians in county—per 10 K	−0.0037	0.0019	0.00039	0.0056	0.0060*
	(−0.89)	(0.43)	(0.10)	(1.58)	(2.14)
County unemployment rate	−0.0061	0.00091	−0.00031	−0.0027	−0.00036
	(−0.40)	(0.07)	(−0.03)	(−0.39)	(−0.06)
Total number of children ages 0-5 in county (thousands)	−0.0062	−0.0042	−0.0032	−0.00075	4.14e-05
	(−1.69)	(−1.25)	(−1.06)	(−0.45)	(0.03)
Number of hospital beds in county	−0.000013	−0.000065	−0.000060	−0.000078	−0.000066
	(−0.11)	(−0.67)	(−0.66)	(−0.97)	(−1.08)
Number of hospitals in county	0.053	0.049*	0.042	0.0316	0.023
	(1.83)	(1.99)	(1.97)	(1.74)	(1.52)
2011	0.066	0.059*	0.37*		
	(1.48)	(2.23)	(9.04)		
2010			0.31*		
			(5.59)		
County received HRL ever			0.013		
			(0.32)		
Lagged well-child claim rate				1.04*	1.06*
				(9.17)	(11.29)
Constant	1.10*	0.967*	0.68*	0.29*	0.24*
	(4.12)	(4.79)	(5.49)	(2.18)	(2.55)
Observations	124	200	300	124	200

*$p < .05$.
[†] *t* statistics in parentheses.
[‡] Additional data and analytic details available from in a supplementary report from the author upon request.

there were year-specific factors that increased well-child exam rates for all NC counties. However, these external changes did not have as strong of an effect on well-child exam rates as they did for enrollment rates; the effect in 2010 is 0.44 for enrollment rates, and 0.31 for well-child exam rates.

Lagged-Dependent Variable-Regression Discontinuity Models

Enrollment rates. LDV-RD results for enrollment rates are displayed in Table 2 in columns 4 and 5. The effect of HRL is positive and significant, indicating a 12.2% point increase in enrollment rates for kindergarten-aged children in the HRL counties. Including the LDV substantially increases the power of the HRL estimate.

Well-child exam rates. LDV-RD results for well-child exam rates are displayed in Table 3 in columns 4 and 5. The LDV-RD HRL treatment effect on well-child exam rates is also positive and significant. The coefficient indicates that HRL counties experienced an 8.6% point increase in well-child exam rates for kindergarten-aged children.

Focus Group and Interview Data Analysis

There was clear heterogeneity in the implementation of HRL. For example, strategies for disseminating information in more populous counties differed from the strategies used in smaller counties (eg, use of more PowerPoint presentations and large-seminars versus one-on-one discussions). Though local control was important to the schools and districts, counties did not feel equally as efficacious at identifying and enrolling families. Other findings suggest that HRL was successful at raising awareness about public health insurance and highlighting the importance of having parents and

physicians fill out the KHA form properly. Recommendations for outreach include: using clear and concise outreach messages and steps for local action, integrating health insurance screenings into other school documents and routines, expanding outreach to older children, being able to adapt to individual needs and ''meet people where they are at'' to make enrollment possible, and training school personnel and medical care providers on CHIP and Medicaid to enable them to communicate with parents face-to-face about the program. Participants felt that this last point was key to informing future school-based interventions because school nurses typically interact with parents only when they are sought out and vice versa. Thus, basic training about Medicaid and CHIP eligibility and the importance of a medical home should be provided to all school staff and faculty on the ''front lines'' with families. As one respondent noted, ''Everyone who sees the form needs to interact with parent.'' A comprehensive description of the qualitative analysis is available from the author.

DISCUSSION

This paper was a comprehensive evaluation of a CHIPRA Cycle I Outreach and Enrollment grant in NC for the *Healthy and Ready to Learn,* a program that was designed to help identify and enroll uninsured kindergarten-aged children in areas of high economic need using schools as the key point of intervention. I used a strong research design with multiple years of data to estimate the causal effect of HRL on Medicaid and CHIP enrollment rates as the primary outcome, and well-child exam rates as a secondary outcome.

I found some evidence that the school-based HRL intervention was effective at increasing both enrollment in CHIP and Medicaid for kindergarten-aged children, as well as increasing preventive care use, in line with similar initiatives conducted across the country.[55] I estimated the effects using a regression discontinuity design and a difference-in-differences analysis, adding data from the baseline year to estimate a ''before and after'' treatment effect. In both of these models the effect of HRL was positive but not significant. More broadly, the findings suggested that there was an increase in both enrollment and well-child exam rates for all counties during the study time. RD is the strongest nonexperimental design for estimating unbiased effects, but it requires a larger sample size.[51] Therefore, I also estimated an RD model that included the dependent variable from the prior year as a covariate (LDV-RD) to increase the power of the HRL estimates. These findings indicated a 12.2% point increase in enrollment rates and an 8.6% point increase in well-child exam rates. Whereas these estimates seem rather high given the low-intensity (and marginal cost) of the intervention, it is likely the case that the true effect of HRL is bounded by the DID and RD results on the low-end, with the LDV-RD results on the high-end. If the true estimate is somewhere between those presented, the well-child exam rate finding in particular adds to the limited evidence suggesting that health insurance coverage can increase preventive care use.

There are several possible explanations for why the results did not achieve significance in the standard RD and DID analyses. The 2 most likely are: (1) federal CHIPRA legislation expanded eligibility and funding during this time period, and (2) an increased number of income-eligible and uninsured children stemming from job loss during the economic recession. The unique effects of HRL may have been lost in the noise created by these large economic and policy changes, or were too small to detect given the power of the sample. The Affordable Care Act will undoubtedly play a major role in insuring low-income and working-poor children and enabling access to care in the coming decade, and will be of primary importance in children's public health policy research, even though many states—including North Carolina—have declined to implement the Medicaid eligibility expansions.[56] Future research on these types of policy tools and interventions should consider the role that schools can play in linking children to insurance coverage and preventive care.

IMPLICATIONS FOR SCHOOL HEALTH

This evidence suggests some potential benefits of using schools as a point of policy intervention in enrolling children in public health insurance and increasing preventive care use. If effects we detected were significant, the effect sizes are large enough that future research should further test the program to see if it can be replicated in other schools, especially if the sample size can be larger. The qualitative findings may be helpful for the implementation of other school-based and community outreach efforts to enroll children in public health insurance and to increase awareness of the importance of preventive care. Indeed, project and school staff noted that HRL ''reignited'' schools' efforts to closely examine the content of each child's health assessment, going beyond simply ensuring that the required form was submitted. Central to achieving this goal was that the school staff and faculty who regularly interact with parents—not just nurses—received training on Medicaid and CHIP, and understood the overall value of the KHA as an indicator of child and family well-being. Given their many duties, it appeared that HRL helped to draw the attention of school staff and faculty back towards child health.

Schools face unprecedented challenges to address the widening social and economic disparities and the myriad problems faced by children and families. School nurses have numerous responsibilities, and are often split between multiple schools. Therefore, a possible implication of this study may be that to fully use schools as a point of intervention, policies need to properly resource school health staff so they have the time to truly engage families and educate them about the importance of insurance and preventative care for their children. For example, one recent study found that designated ''school wellness coordinators'' helped to facilitate the dissemination of key health and wellness information to teachers and staff throughout schools.[57] Without additional resources like a coordinator, HRL may be an example of an intervention that simply put another burden on already overwhelmed schools in low-income communities.

Human Subjects Approval Statement

The Institutional Review Board of the University of North Carolina at Chapel Hill approved this research in April 2011 (IRB #11-0564). Focus group participants and key informants were given the opportunity to review and sign a consent form describing the purpose of the study and to decline from participation.

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